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THE THYLACINE: A CASE FOR CURRENT EXISTENCE ON MAINLAND AUSTRALIA

ATHOL M. DOUGLAS
372 Lesmurdie Road, Lesmurdie,
Western Australia 6076, Australia

ABSTRACT: The thylacine, *Thylacinus cynocephalus,* also known as the Tasmanian Tiger or Wolf, has been believed extinct on the island of Tasmania since 1936, and on the mainland of Australia for several thousand years. However, sightings of an animal apparently identical to the thylacine have been reported consistently from many parts of the Australian mainland for decades. Investigation of reports from people who have reported sightings of the thylacine in Western Australia are reviewed, and doubt is cast on the carbon^{14} dating of a thylacine carcass found in a cave at Mundrabilla Station, Western Australia.

INTRODUCTION

Well into the Holocene, the thylacine or Tasmanian Tiger or Wolf, *Thylacinus cynocephalus,* ranged over the whole of Australia. However, by the time of European arrival, it was considered extinct on the mainland, surviving only in Tasmania, where it was relatively common. Because it attacked stock, it was considered vermin, and thousands were killed. In 1936, the year it was officially declared protected in Tasmania, the last known specimen died in Tasmania's Hobart Zoo.

On the mainland, many reports have been made of sightings of a strange animal, apparently identical to the thylacine. These reports have been disregarded by most zoologists and by those who unquestionably accept scientific literature, which states that the thylacine is extinct on the mainland, and most likely also in Tasmania. The sightings mostly represent chance encounters, and have come mainly from reputable individuals with nothing to gain by fabricating stories.

Ludwig Glauert followed up many such reports when he was the director of the Western Australian Museum. As a member of the scientific staff of the Museum, I was sent by him on several occasions to investigate unknown predator reports, but I uncovered nothing that could determine their identity. (I retired, as Senior Experimental Officer, in 1974 following a tenure of 40 years.)

On one occasion, in 1951, a man from near Dwellingup went to the Museum with photographs and casts of footprints. He described the animal he had seen as identical to the thylacine. Unfortunately, I did not accept the evidence at the time, but I have subsequently seen, in the same locality, carcasses of kangaroos and sheep mutilated in the characteristic manner of a thylacine kill, so unlike that of a dog or dingo. Death is caused by the prey's neck being broken after a sometimes prolonged struggle.

FIG. 1.—One of a series of photos taken in Western Australia which shows what appears to be a thylacine digging at the base of a tree. The author believes that this is the only photo of the animal alive. (Kevin Cameron.)

On another occasion, I was sent to investigate reports of a strange sheep-killing animal near Wagin. I trapped and shot an Afghan hound with long, matted hair that had been living in the bush. This feral dog reinforced my disbelief in the existence of the thylacine until 1985. That is when I was shown photographs of an animal burrowing at the base of a tree.

THE CAMERON PHOTOGRAPHS

In October, 1981, the Agricultural Protection Board of Western Australia hired a tracker of Aboriginal descent, Kevin Cameron, and supplied him with a .357 magnum handgun. He was instructed to seek out a strange animal which had been reported by numerous individuals, including government employees, throughout the southwestern part of Western Australia. Cameron claimed several thylacine sightings during his employment, and later, on his

FIG. 2.—Another photograph in the same series of what appears to be a thylacine. The author believes that this photograph was taken several hours later, and that the animal was already dead. (Kevin Cameron.)

own time, produced five photographs of what appears to be a thylacine burrowing at the base of a tree (Figs. 1 and 2). Skeptics rejected his account and photos outright. Cameron, for his part, was uncooperative, and would not show the photographs publicly or allow them to be reproduced. He believed they had commercial value.

When I met Cameron, he showed me the photographs, and I accepted the veracity of his account. His sightings, the animal's reported behavior, its appearance, and the photographs convinced me that his tracking accounts were genuine and that he had indeed seen a living thylacine. This prompted me to write an article on the subject, which was published in *New Scientist* (Douglas 1986).

Cameron continued to be extremely secretive, and would not allow the photographs or negatives out of his possession. He withdrew permission for me to use the color photographs in my article, but gave permission for the use of a black-and-white enlargement of one of the color negatives. This was unacceptable to the editors of *New Scientist,* who had been promised color prints. When my article was completed and ready for submission, Cameron finally agreed to the use of color negatives, but accompanied me to the photographic laboratory to have the enlargements made. This was the first time I saw the negatives with full-frame, good-quality enlargements. When I saw the negatives, I realized Cameron's account with regard to the photographs was inaccurate. The film had been cut, frames were missing, and the photos were taken from different angles—making it impossible for the series to have been taken in 20 or 30 seconds, as Cameron had stated.

There were no photographs of the animal bounding away. Furthermore, in one negative, there was the shadow of another person pointing what could be an over-under .12 shotgun. Cameron had told me he had been alone. It would have been practically impossible for an animal as alert as a thylacine to remain stationary for so long while human activity was going on in its vicinity. In addition, it is significant that the animal's head does not appear in any of the photographs.

When the photographs were returned by *New Scientist,* I took them to a laboratory for color separation tests, and determined that, besides the time lapse deduced from shadow movement, there was a difference of several hours in the exposure times of the first and subsequent prints.

In my opinion, the thylacine depicted in the photographs published in *New Scientist,* with the exception of the enlargement in the lower right corner of page 45 (Fig. 1), is a dead animal rigid in *rigor mortis.* I believe this enlargement (Fig. 1)—what must be the first photograph—depicts a live animal. The full frame of this negative is the one which shows the shadow of the man with a rigid gun-like object pointing in the direction of the thylacine at the base of the tree. This shadow was deliberately excluded in the photo published in *New Scientist.* If I am correct in this supposition, the thylacine was alive when the first photo was taken, but had been dead for several hours by the time the second photograph was taken.

At no time would Cameron inform me of the location where the photographs were taken. Even though there were discrepancies associated with the photographs, I decided to proceed with publication of the *New Scientist* article; I hoped that the carcass would later be found, presumably shot by "persons unknown." In subsequent issues of *New Scientist,* letters were published which criticized the Cameron photos, including the shadow discrepancies. These criticisms were, of course, valid. When the media became aware of this, Cameron broke off all relations with me. Unfortunately, I have not seen or spoken with him since.

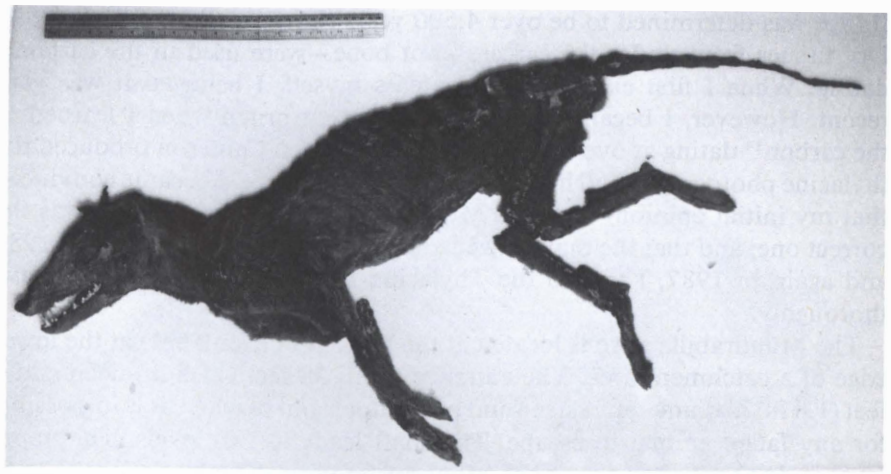

FIG. 3.—The thylacine specimen recovered from a cave on Mundrabilla Station, Western Australia, in 1966. Carbon[14] dating indicated an age of over 4,500 years. The author proposes that the specimen was only months old when found, as it was not a dehydrated carcass. (Western Australian Museum.)

THE MUNDRABILLA STATION SPECIMEN

I will now address another form of evidence in support of the thylacine's continued survival on mainland Australia. A carcass of a thylacine was recovered by a Western Australian Museum party in 1966. The specimen was found in a cave, Thylacine Hole, on Mundrabilla Station, near the Western Australian border (Lowry and Lowry 1967). This specimen is now housed in the collection of the Western Australian Museum (Fig. 3).

The carcass was fully covered with hair, had a musty odor, and looked like a recent dried-out carcass after the maggots had left but before the hide- and fur-eating invertebrates had begun their attack. It was *not* a dehydrated carcass, with dried intestines and flesh.

There is a sequence in which invertebrates and bacteria attack a carcass after death. Putrefaction occurs and the odor attracts blowflies of different species. Their larvae enter through wounds or through the natural orifices of the body. Bacterial action liquefies organs and flesh, and the resultant fluid seeps into the ground away from the carcass. By the time the fly larvae have left, the carcass is more or less dry, and other invertebrates—such as members of the families Trogidae and Dermestidae and the larvae of moths related to the clothes moth—attack the dried skin and fur, leaving only the skeleton; this is then often disturbed or eaten by vertebrates seeking phosphates or other minerals.

The Mundrabilla carcass was carbon[14] dated at the University of Sydney.

Its age was determined to be over 4,500 years (Lowry and Merrilees 1969). Dry tissues from under the carcass—not bone—were used in the carbon^{14} dating. When I first examined the carcass myself, I believed it was very recent. However, I became dubious of its recent origin when I learned of the carbon^{14} dating at over 4,500 years. Later, when Cameron produced the thylacine photographs and his supporting field evidence, I became convinced that my initial opinion—that the Mundrabilla carcass was recent—was the correct one, and that the matter needed further investigation. Thus, in 1986 and again in 1987, I visited the Thylacine Hole, and I explored the cave thoroughly.

The Mundrabilla cave is located at the bottom of a sink hole at the lower edge of a catchment area. The entrance shaft, 38 feet (11.5 m) deep and 6 feet (1.8 m) in diameter, is steep and precipitous, out of which it is impossible for any fallen animal to escape. The shaft leads to two levels. The upper level is dry, and shows no signs of recent flooding. The lower level begins below the shelf of the upper level, and it is to this level that flood waters pour. These carry mud and debris, and follow a deep channel around the periphery of the lower level. To reach the end of the lower level, where the thylacine carcass was found, it is necessary to crawl most of the 450 feet (137 m) over a dry, dusty floor typical of the upper level.

The ceiling of the upper level is mostly covered with stalactites, some of which are pure salt (NaCl), while others are of carbonate. Many have small pedicels, especially those composed of salt. Where the ceiling is impregnated with salt flakes, it is very friable, and the stalactites fall to the floor under their own weight.

The cave is repeatedly flooded. As recently as November, 1988, the immediate area recorded 3 inches (7.6 cm) of rain, and in April, 1989, at least 1.5 inches (3.8 cm) of rain fell. The humidity recorded in October, 1966, was 67 percent (Lowry and Lowry, 1967). During my two visits to the cave, in April, 1986, and August, 1987, the lower level of the cave was unpleasantly humid even though it was dry. The upper floor of the cave was dry and showed no signs of flooding. The lower level had a floor partly composed of deep, dry mud. There was also considerable debris, consisting of rabbit dung, sheep dung, emu bones, and vegetation obviously washed in from the surface.

Lowry and Lowry (1967) reported that the thylacine was found in the deepest part of the cave, on a rock pile—with its head raised (Fig. 4). As dead animals do not raise their heads, it must have been moved to that location by water or human hands, possibly individuals prior to the Lowrys' visit. The find was described by them as follows: "The animal lay on its right side with its head raised off the ground. The skin and hair were largely intact on the exposed surfaces, and the characteristic dark bars were clearly visible. The soft tissue had decomposed to a tarry substance which coated

FIG. 4.—Close-up view of the head of the Mundrabilla thylacine specimen. The carcass was still covered with hair, and had not yet been attacked by fur-eating invertebrates. (Western Australian Museum.)

the exposed bones. . . . However, the tongue and left eyeball were still recognizable, and a musty odor of decomposition was noticeable. The tail was some 12 inches away from the rest of the body, probably moved there by murids [rats] which appeared also to have chewed the abdomen. Blow-fly pupal cases and faeces (probably murid) were scattered around the carcass" (Lowry and Lowry 1967).

In my opinion, the tarry substance referred to by Lowry and Lowry is adipocere. This is a creamy white, waxy substance often formed on carcasses which are exposed to wet or damp conditions. It is not inhibited by a saline or lime environment. It is persistent, and I have found that carcasses in damp mines and caves have had this creamy white substance (grave wax) eventually dry to a black, tarry-like substance, as described by Lowry and Lowry.

The published description is not that of a 4,500-year-old carcass, and I believe its age could be given in months or, at an extreme, a year or so. An inaccurate dating could have resulted from contamination from the groundwater which saturated the carcass.

During my 1986 visit to the cave, I found a dingo carcass; it was hairless, dry and odorless, and its skin was like parchment (Fig. 5). The thylacine

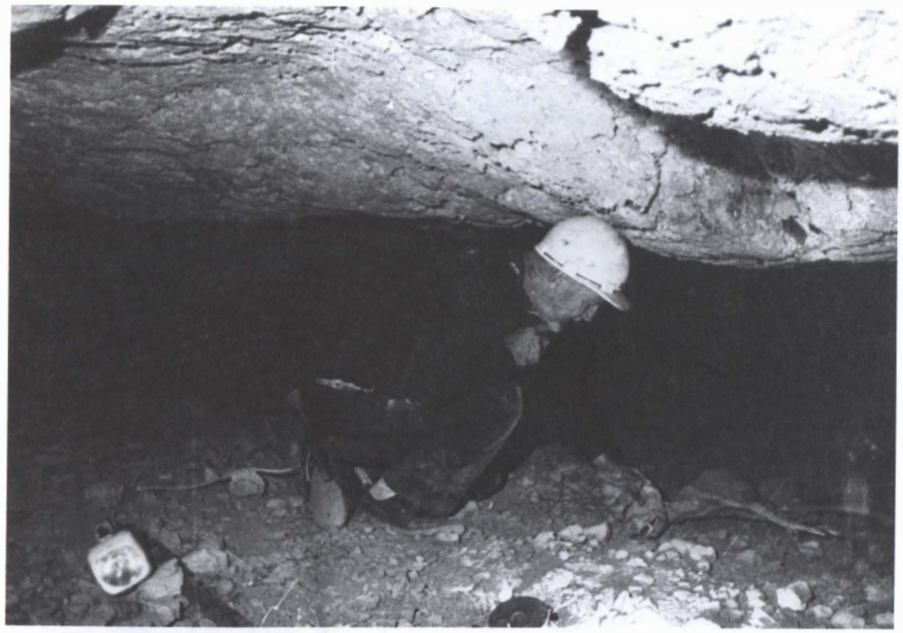

FIG. 5.—The author in Thylacine Hole in 1986 with newly-found dingo carcass. It could not have been in the cave for more than 20 years, due to the 1966 retrieval of all faunal specimens. Unlike the thylacine specimen, which is supposed to be much older, the dingo carcass was hairless, dry, and odorless, and had skin like parchment. (Bruce M. Douglas.)

carcass had been—and is—in a far superior state of preservation than this dingo carcass, yet the dingo carcass could not have been in the cave for more than 20 years, as the Western Australian Museum party had removed all specimens and bones in 1966. A map in the paper by Lowry and Lowry (1967) shows all locations of skeletons taken from the cave. Twenty years later, I found—besides the dingo—carcasses of snakes, lizards, small bats, and owls; some of these were devoid of all hair or feathers (Fig. 6). Many of these carcasses were still under attack from invertebrate larvae. Live barn owls, rats, bats, and a snake were also seen in the cave.

Because the 4,500-year-old dating of the thylacine carcass had been so readily accepted in scientific circles, I was not happy to be so completely at variance with the finding—until my lingering doubts were completely removed by information received from John Bannister, Director of the Western Australian Museum. On October 16, 1987, I wrote to Bannister requesting a reassessment of the age of the thylacine carcass. In his response, dated November 18, 1987, he stated that a Western Australian Museum geologist, George Kendrick, had reported: "The rocks on which the thylacine was found were creamy white abrakurrie limestone."

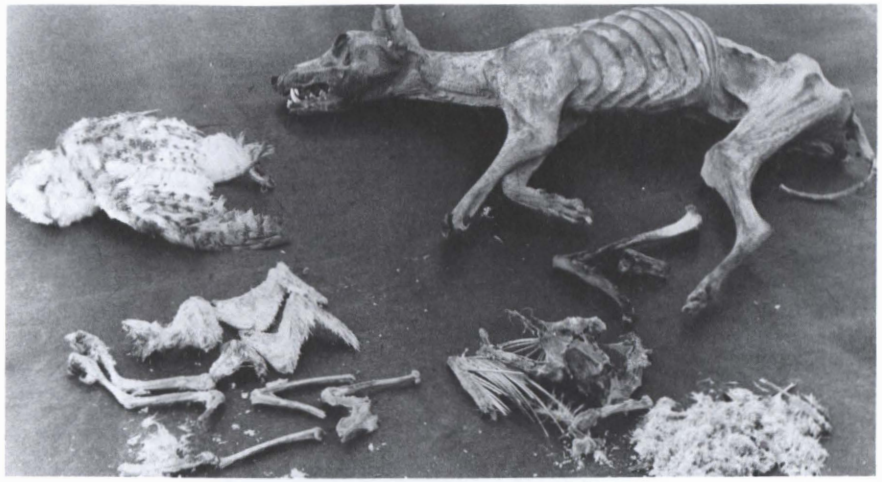

FIG. 6.—The dingo carcass and other faunal remains recovered by the author in Thylacine Hole in 1986. Many of the remains were still under attack by invertebrate larvae. (Athol Douglas.)

This creamy white limestone is of a very recent fall, some of which is below the high water mark and is not stained. It is a feature of this cave that numerous salt stalactites exist, and these have a very small pedicel and soon fall to the cave floor under their own weight. Above this limestone, the ceiling had no salt or carbonate stalactites, and on the limestone itself are no dust, stalagmites, fretted roof material, debris, or animal remains. It is in a pristine state and quite different from the rest of the cave floor. My companions on both of my excursions into the cave—my son Bruce M. Douglas and Robert Cooper—concur with me on the pristine state of this limestone.

Bannister also stated: "It is more likely that high salt levels were more important in inhibiting bacterial decay of the flesh. Specimens of other carcasses are present in the collection that show high levels of salt impregnation." However, there is no way that salt, sufficient to preserve an animal for 4,500 years, could enter the flesh, particularly as the thylacine carcass is erroneously claimed to be a dried, mummified carcass, which it is not. The only way that salt could reach high concentration is by immersion of a dry carcass in a strong saline solution. Such conditions exist in the Mundrabilla cave, as numerous salt stalactites form, drop to the floor, and are dissolved in the occasional floodings.

However, if the carcass was found on pure white abrakurrie limestone, there is no possibility of the carcass being salt-impregnated in such a location, as assumed by Bannister, and also by McNamara and Murray (1985).

Salt impregnation could only occur from positioning a dry carcass in concentrated saline solutions. This could not have occurred above the water level on pure-white, newly-fractured abrakurrie limestone. In my opinion, the carcass was washed to the lowest level as a dry carcass, and deposited there in an area which soon drained, leaving pools heavily saturated in salt from dissolved salt stalactites. The carcass may have been only months old at the time it was found. This carcass represents strong evidence of the existence of the thylacine in very recent times. It is also significant that recent sighting reports have come from Mundrabilla Station and the surrounding area.

In a subsequent communication dated April 13, 1988, in answer to a query, Bannister informed me that the carcass has not been X-rayed. An X-ray would probably show internal damage caused by the 38-foot (11.5 m) fall which would have prevented the thylacine from crawling or walking the 450 feet (137 m)—in darkness—to the deepest part of the cave. In my opinion, the thylacine did not die where it was found. It was probably placed on the rock pile by previous unknown visitors to the cave.

Thylacine Behavior and Recent Eyewitness Reports from Western Australia

Hundreds of people throughout Western Australia have clearly described an animal similar to the thylacine. Most of these people are from different localities and are separated by a considerable distance, yet their observations tally in minute detail. I have interviewed witnesses from the areas of Augusta, Boyanup, Dwellingup, Boyup Brook, Wagin, Bannister, Denmark, Nannup, and Busselton, all of whom, without any prompting, have described known facts and characteristics of the thylacine. None of these witnesses had read publications dealing with the thylacine before their sightings.

One sighting, in 1987, was near the Augusta golf course. Some months later, I was informed that a fire had passed through the area where the sighting had taken place. I visited the locality, and just inside the burn section I found the remains of a kangaroo. I am certain it was a thylacine kill. Typically, the skull and long bones were crushed and mostly broken, and showed teeth marks. I spent the whole day inspecting the burn section, and found five additional dismembered partial skeletons. All except one were within a short distance of the quarter-circle depressions where kangaroos shelter in the shade of a tree or shrub, and move as the sun shifts. I have found carcasses—or have been shown where I believe thylacines had been feeding on their prey—with these typical depressions nearby. Two years later, in 1989, Rory Neal found another probable thylacine kangaroo kill in the same area (Fig. 7). The neck was broken, and the tongue, face, and throat were eaten.

Thylacine sightings have also been supported by the presence of carcasses

FIG. 7.—A kangaroo which the author believes was killed by a thylacine. The neck was broken, and the tongue, face, and throat were eaten. (Rory Neal.)

of sheep killed in the manner peculiar to solitary predators, such as the larger cats, but definitely not dogs. Often, the head is eaten, especially when the kill is a young animal. The neck is broken, and the throat is torn open after the animal is pulled down and choked to death. The predator appears to have an immediate blood meal, thus little if any blood is at the scene of the kill. The tongue, throat, and nasal area are eaten at the same time. Later, the predator may return and eat the lungs, liver, and spleen, remove the paunch, and attack the hindquarters. Little fur is discarded, and the animal is opened up almost as cleanly as with a knife or scalpel.

It is of historical record that thylacines do not return to their kill after the carcass has been visited by humans, and so they are difficult to poison or trap (Smith 1982). This was the case with a large wether, which had been killed near Boyup Brook in 1986—a probable thylacine kill (Fig. 8). The neck was broken, and the face, throat, and tongue were eaten. The carcass was poisoned and traps were set, but the attacker did not return. It is possible that thylacines are able to sense metal, a substance foreign in any natural situation. Their prey could later be eaten or mutilated by dogs, dingoes, foxes, or feral pigs, but there are no records of these animals leaving a carcass with its throat torn out, with its tongue eaten, little if any blood, a broken neck, and the absence of internal organs such as heart, liver and lungs.

One interesting detail arising from my interviews is that sightings have never been reported by fox hunters. They deride its existence, maintaining

FIG. 8.—Carcass of a large wether killed in 1986 near Boyup Brook. The face, throat, and tongue were eaten, and the neck was broken. The carcass was poisoned, and traps were set, but the predator, thought to be a thylacine, did not return. (Athol Douglas.)

that their nocturnal spotlighting activities while hunting foxes would have verified its existence. However, all the reported Western Australia thylacine sightings that I have investigated were made in the morning or evening, and all were chance encounters on roads for seconds or a brief time. I suspect that the thylacine is not a nocturnal hunter, but hunts by smell in late afternoon or early morning. Having located its prey by scent, it probably makes a prodigious leap—of which it is capable—and grasps its prey with its jaws wide open, breaking the neck and proceeding to consume a blood meal as previously described. It has been conjectured that the thylacine wears down its prey (Smith 1982), but I propose that it stalks a feeding or resting animal and, by either a leap or a sudden rush, claims its prey.

Because of the dense bush and scrub over much of southwestern Australia, the thylacine may exist, yet very seldom be seen. This is characteristic of most mammalian predators, which are solitary hunters. Perhaps the most common predator in Australia is the introduced feral cat, an animal that is only seen fleetingly on chance encounters. The feral cat must not be confused with the farm or domestic cat, often seen while hunting within a mile or so of its home. Other common predators are native cats, *Dasyurus,* which are rarely seen but can be heard—or trapped—during their destructive visits to the fowl run.

CONCLUSION

In concluding, I should emphasize that my investigations, and thus my findings, concern only the thylacine in Western Australia. My findings do not necessarily apply to other parts of mainland Australia, or to Tasmania, where the species has been thought extinct since only the 1930's.

It is not possible to convey in a paper the credibility and enthusiasm of individuals who have reported sighting the thylacine. For the past 6 years, I have had to seek out eyewitnesses. Those who seek publicity have been the exception. It is not easy to accept laughter, disbelief, and derision, which is what most observers unfortunately experience when reporting their sightings.

It is regrettable that official bodies do not seem very interested in the possibility of surviving thylacines. This may be because of the possible high cost of recompense for stock damage should it be established that the species survives—which would make it a protected species. It would certainly not be possible to restrict it to a preserve.

Nevertheless, thylacine reports in Western Australia should be investigated seriously and thoroughly. It is very probable that relict, cryptic populations of this important Australian mammal still survive on mainland Australia, and have done so since European colonization.

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